問1

1.   An electric power supply system for a hybrid vehicle, comprising:

a high-voltage circuit comprising a high-voltage storage device connected to a first motor generator that is to be coupled to a driving wheel;

a low-voltage circuit comprising a low-voltage storage device connected to a second motor generator that is to be coupled to an engine;

a control circuit comprising a converter connected to the high-voltage circuit, the converter stepping down electric power, and a control device connected to the converter;

a switch portion provided between the low-voltage circuit and the control circuit, the switch portion operating in a first connection state in which the second motor generator is separated from the control device and is connected to the low-voltage storage device and a second connection state in which the second motor generator is separated from the low-voltage storage device and connected to the control device; and

a fail-safe portion that, at the time of a failure in which the converter does not supply electric power to the control device, controls the switch portion to be in the second connection state and controls the second motor generator to be in a power generation state, thus supplying electric power from the second motor generator to the control device.

2.   The electric power supply system for a hybrid vehicle according to claim 1, wherein

the failure is when the high-voltage storage device is depleted, or when the converter fails.

問2

　　　One known type of social game is online-battle-type card games in which known real card games are computerized to be implemented on networks.

　　　Various characters are represented on digitized cards, and battle-characteristics values, such as attacking ability or defense ability, are set for each of the cards. When two members each present a certain number of cards selected from cards owned by him or her in a battle field, software in the social media system performs a battle operation, and informs the two members of the result of the battle. As a result of the battle, the member who won obtains the card owned by the member who lost, for example. According to this result, data processing for renewing card-possession information is conducted.

　　　The card game according to this invention may regard another social game as a master game, and itself as a slave game that operates together as a subsidiary of the master game. This makes it possible to generate a synergistic effect by coupling the master game and the slave game to improve the pleasure of participating in the game, and seeks to vitalize social media.

問3

(*1) In FIG. 1, in energy minimization calculation 103, the state of each node (for example, the degree of stress of each node, and index value of the stress) is stochastically changed to make the energy of the whole system as low as possible. When a certain time period has elapsed or a certain number of calculations have been conducted, the calculation is terminated.

(*2) As depicted in a graph 206 of the correlation coefficient R with respect to the path number r (distance) in FIG. 2, the correlation coefficient R gradually attenuates, taking positive values and negative values in turn while the path number r increases. Such a tendency of the correlation

coefficient is fairly similar to the behavior of a spin correlation coefficient in a material called "anti-ferromagnetic" in magnets. This fact suggests the following.

The tendency for the degree of stress in adjoining nodes to have inverse values in magnitude evokes the Anti-ferromagnetic Ising Model that expresses interactions that cause the directions of adjoining electronic spins to be aligned in opposite directions in a magnet. The Ising Model has played an important role as a basic model of magnets in the science of magnetic materials. In this model, the electronic spin configuration is determined to minimize an energy function with a term relating to interactions between the spins (exchange interactions) and a term relating to an external magnetic field.